UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/576,601	04/21/2006	Wolfgang Klapp	P29517	2100

7055 7590 01/06/2010

GREENBLUM & BERNSTEIN, P.L.C.
1950 ROLAND CLARKE PLACE
RESTON, VA 20191

EXAMINER	
FISCHER, JUSTIN R	

ART UNIT	PAPER NUMBER
1791	

NOTIFICATION DATE	DELIVERY MODE
01/06/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com
pto@gbpatent.com

Office Action Summary	Application No.	Applicant(s)	
	10/576,601	KLAPP ET AL.	
	Examiner	Art Unit	
	Justin R. Fischer	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 December 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,6-8,10,11,13,15,18 and 21-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,6-8,10,11,13,15,18 and 21-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *121609*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 16, 2009 has been entered.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-3, 7, 8, 10, 11, 13, 15, 27-29, 31, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Howland (US 2002/0074068, of record) and further in view of Tyobo (JP 60-28538, of record) and Loose (DE 2905136, of record).

Howland is directed to a bicycle tire construction comprising an anti-puncture device, wherein said device can include a single layer or multiple layers of fabric (Paragraph 6). Howland further teaches that the anti-puncture device can be formed of a wide variety of materials, including VECTRAN™ , which is analogous to the claimed polyester/polyarylate filaments (Paragraph 27). The reference, however, fails to expressly describe the specific makeup of the reinforcing elements. **In any event, the claimed fineness, thread count, and thread number (number of filaments per thread) are consistent with commonly used reinforcing elements in the tire**

industry, as shown for example by Tyobo (Abstract) and Loose (Abstract). It is emphasized that the claims define broad ranges for each of the parameters and applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed combination of characteristics. Lastly, it is emphasized that while VECTRAN™ is described as a non-preferred embodiment, a reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art, including non-preferred embodiments (see MPEP 2123).

Regarding claim 2, one of ordinary skill in the art at the time of the invention would have found it obvious to use a wide variety of filaments, including those having diameters less than 40 microns. The particular filament, and thus thread/yarn construction, is a function of the intended use of the tire and the specific construction of the anti-puncture device (e.g. number of layers). Furthermore, applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed diameters.

With respect to claims 3 and 10, VECTRAN™ satisfies the claimed chemical formulas.

Regarding claims 7 and 8, the anti-puncture device of Howland is formed of woven fabric layers (warp and weft threads). In this instance, threads formed of VECTRAN™ are seen to have some degree of stretchability in the circumferential direction of the tire (claims do not require a separate thread material, such as polyamide or polyester).

As to claims 11, 13, and 15, as noted above, Loose recognizes the known use of a thread count between 250 and 450 cords per 10 cm, which incorporates fifty percent of the claimed range.

With respect to claims 27-29, 31, and 32, it is emphasized that the claimed fineness is consistent with commonly used reinforcing elements in the tire industry and is a direct function of a wide variety of parameters, such as cord density, number of layers, type of tire, and thickness of surrounding layers. More particularly, the exemplary embodiment suggested by Tyobo has an upper limit of 330 dtex (300 denier) and such is extremely close to the lower limit of the claimed range. One of ordinary skill in the art at the time of the invention would have readily appreciated a wide variety of cord constructions given the general disclosure of Howland and such would include the use of cords having a fineness in accordance to the claimed invention. Also, applicant has failed to provide a conclusive showing of unexpected results for the claimed fineness as it appears that the critical feature of applicant's invention is the use of a specific material (e.g. Vectran™) (provides higher resistance to perforation as compared to other threads with the same or similar construction- Page 2, Lines 4+). This is further evident in view of the results detailed in Table 1. Lastly, it is evident that the multifilament threads or cords of Howland necessarily have some fineness and the disclosed values are consistent with reinforcing materials used in the tire industry (Tyobo and Loose are exemplary embodiments).

4. Claims 1-3, 7, 10, 11, 13, 15, 27-29, 31, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazusa (US 4,649,979, of record) and further in view of Howland, Tyobo, and Loose.

Kazusa is directed to a bicycle tire construction comprising a breaker between carcass layers, wherein said breaker can include at least one ply (Column 1, Lines 60-70). The reference suggests the use of a wide variety of cord materials, including aromatic polyamides (KEVLAR™). While the reference fails to expressly suggest the use of VECTRAN™ , such a material is a well recognized "high performance" fiber that is commonly used as an equivalent alternative to KEVLAR™ , as shown for example by Howland (Paragraph 27). It is emphasized that Howland and Kazusa are both directed to tire constructions including an anti-puncture or cut resistant arrangement. Thus, one of ordinary skill in the art at the time of the invention would have found it obvious to use the claimed fiber materials in the breaker of Kazusa.

As to the characteristics of the reinforcing elements, the claimed fineness, thread count, and thread number (number of filaments per thread) are consistent with commonly used reinforcing elements in the tire industry, as shown for example by Tyobo (Abstract) and Loose (Abstract). It is emphasized that the claims define broad ranges for each of the parameters and applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed combination of characteristics.

Regarding claim 2, one of ordinary skill in the art at the time of the invention would have found it obvious to use a wide variety of filaments, including those having

diameters less than 40 microns. The particular filament, and thus thread/yarn construction, is a function of the intended use of the tire and the specific construction of the anti-puncture device (e.g. number of layers). Furthermore, applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed diameters.

With respect to claims 3 and 10, VECTRAN™ satisfies the claimed chemical formulas.

As to claims 7, VECTRAN™ is seen to be stretchable (at least to some degree) in the circumferential direction of the tire.

As to claims 11, 13, 15, as noted above, Loose recognizes the known use of a thread count between 250 and 450 cords per 10 cm, which incorporates fifty percent of the claimed range.

With respect to claims 27-29, 31, and 32, it is emphasized that the claimed fineness is consistent with commonly used reinforcing elements in the tire industry and is a direct function of a wide variety of parameters, such as cord density, number of layers, type of tire, and thickness of surrounding layers. More particularly, the exemplary embodiment suggested by Tyobo has an upper limit of 330 dtex (300 denier) and such is extremely close to the lower limit of the claimed range. One of ordinary skill in the art at the time of the invention would have readily appreciated a wide variety of cord constructions given the general disclosure of Kazusa and such would include the use of cords having a fineness in accordance to the claimed invention. Also, applicant has failed to provide a conclusive showing of unexpected results for the claimed

fineness as it appears that the critical feature of applicant's invention is the use of a specific material (e.g. Vectran ™) (provides higher resistance to perforation as compared to other threads with the same or similar construction- Page 2, Lines 4+). This is further evident in view of the results detailed in Table 1. Lastly, it is evident that the multifilament threads or cords of Kazusa necessarily have some fineness and the disclosed values are consistent with reinforcing materials used in the tire industry (Tyobo and Loose are exemplary embodiments).

5. Claims 6, 18, 21-26, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazusa, Howland, Tyobo, and Loose as applied in claims 1 and 2 above and further in view of Miyamoto (JP 64-60402, of record).

As detailed above, Kazusa, in view of Howland, Tyobo, and Loose, is directed to an anti-puncture breaker construction comprised of at least one ply of polyester/polyarylate filaments (VECTRAN™). In this instance, though, Kazusa is silent as to the specific makeup of the at least one ply. Miyamoto, on the other hand, is directed to an extremely similar anti-puncture breaker construction comprised of at least one ply, wherein said at least one ply is formed of threads/yarns running parallel to one another and inclined between 20 and 50 degrees with respect to the tire circumferential direction. As such, one of ordinary skill in the art at the time of the invention would have found it obvious to form the plies of Kazusa in accordance to the claimed invention (parallel threads). It is emphasized that Kazusa is silent as to the construction of the breaker plies- Miyamoto evidences the known construction of such breaker plies.

With respect to claims 22-26 and 30, each of the limitations have been addressed in the previous paragraphs.

Response to Arguments

6. Applicant's arguments filed December 16, 2009 have been fully considered but they are not persuasive.

Applicant argues that Tyobo merely discloses that the weft is a core yarn prepared by covering a core yarn with a non-heat fusible short fiber, and provides characteristics of the core yarn and the ratio of short fiber to core yarn. Also, applicant contends that there is no indication as to why one having ordinary skill in the art would look to the abstract of Tyobo for a disclosure regarding multifilament properties or characteristics.

As detailed above, Howland expressly discloses a puncture resistant assembly comprising the claimed multifilaments (VECTRAN™). Although the reference fails to expressly disclose the characteristics of said multifilaments, said multifilaments are formed with a certain number of filaments and have a certain fineness and thread count. One of ordinary skill in the art at the time of the invention would have looked to other fabric assemblies used in the tire industry and formed of multifilaments to determine the relevant characteristics or properties. In this instance, Tyobo and Loose teach tire fabric assemblies having a fineness, thread count, and thread number in accordance to the broad ranges of the claimed invention and applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed characteristics. **It is emphasized that one making the tire of Howland would have to select a**

fineness, thread count, and thread number since the reference is silent with respect to the these characteristics and the claimed values are consistent with those used in similar tire fabric assemblies, as shown for example by Tyobo and Loose. More particularly, the multifilament elements of Howland necessarily have some fineness, thread count, and thread number and applicant has failed to provide a conclusive showing of unexpected results for the claimed characteristics.

Also, a fair reading of Tyobo broadly suggests general characteristics for multifilament reinforcing elements and such would not exclude Vectran™ fibers. It is emphasized that Tyobo is broadly applied to teach that the claimed characteristics are consistent with well known and common multifilament reinforcing elements used in the tire industry.

Applicant further argues that Loose is directed to a fabric providing protection for retread and it is not seen why one having ordinary skill in the art would modify Howland or Kazusa with the disclosure of Loose. As stated above, Tyobo and Loose are applied to recognize general characteristics of multifilament reinforcing elements used in the tire industry and such characteristics are consistent with those required by the claimed invention. Again, it is emphasized that the multifilament elements of Howland necessarily have some characteristics and one having ordinary skill in the art would be motivated to use a variety of elements having common characteristics absent any conclusive showing of unexpected results. As detailed above, Table 1 compares the inventive filament material with tires formed with nylon and such does not evidence an

unexpected benefit for the use of the inventive material having specific characteristics. It is suggested that applicant compare the inventive example with additional examples formed with the inventive fiber material and having characteristics outside the claimed range (e.g. smaller or larger fineness).

Regarding the diameter, one of ordinary skill in the art at the time of the invention would have found it obvious to use a wide variety of filaments, including those having diameters less than 40 microns. The particular filament, and thus thread/yarn construction, is a function of the intended use of the tire and the specific construction of the anti-puncture device (e.g. number of layers). Furthermore, applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed diameters.

With further respect to Howland, applicant contends that following the overall disclosure, one having ordinary skill in the art would not have any desirability of performing experimentation pertaining to fibers as recited in Applicants' claims to arrive at the subject matter recited in Applicants' claims. More particularly, applicants argue that one having ordinary skill would have performed experiments with the commercially available polyesters as opposed to the claimed polyester/polyarylate filaments.

A fair reading of Howland, however, clearly suggests that the claimed multifilament reinforcing elements represent a non preferred embodiment. Paragraph 27 states the following:

For cost considerations, preferred embodiments of the invention utilize fibers and yearns that are not formed of pure high performance fibers, such as Kevlar ™ and Vectran™……

Thus, the reference expressly teaches a tire construction formed with high performance fibers and while disclosed as being non-preferred, it is well taken that a reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art, including non-preferred embodiments (see MPEP 2123). It is emphasized that the reference is directed to embodiments formed with and without high performance fibers and one having ordinary skill in the art at the time of the invention would have found it obvious to experiment or modify preferred and non-preferred constructions. Additionally, the suggestion that high tenacity fibers cause high abrasion is directed to non high performance fibers having a high tenacity (Paragraphs 4 and 5)- the reference only teaches, as noted above, that the claimed high performance fibers represent a non preferred embodiment due to their high cost.

Regarding Kazusa, the reference expressly teaches a puncture resistant structure formed with high performance fibers- the fact that Kazusa is prior to the development of Vectran™ does not render the combination of Kazusa and Howland non obvious. It is emphasized that the pending rejection is not one of anticipation but rather one of obviousness. One of ordinary skill in the art at the time of the invention would have found it obvious to use any high performance fiber in Kazusa that is used in the tire industry and disclosed in an alternative manner with Kevlar™ (Vectran™ represents one such fiber in view of Howland).

As to Miyamoto, Miyamoto provides one example of a similar puncture resistant structure in which reinforcing elements are inclined between 20 and 50 degrees with respect to the circumferential direction and such fully encompasses the range of the

claimed invention between 40 and 50 degrees. It is emphasized that the reinforcing elements of Miyamoto necessarily have some inclination angle and the disclosed inclination angles are consistent with those used in similar puncture resistant layers in bicycle tires. Furthermore, applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed inclination angle.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R. Fischer** whose telephone number is **(571) 272-1215**. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Justin Fischer
/Justin R Fischer/
Primary Examiner, Art Unit 1791
December 29, 2009